

ABSTRACT

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TITLE OF THE STUDY: Learners' Reasoning on Socio-Scientific Issues in Some Concepts of Chemistry.

KEYWORDS: Learners, Reasoning, Socio-scientific Issues, Chemistry

FINDINGS:

- It is evident that the senior-secondary level textbooks need to address the socio-scientific issues by introducing links and references of new advancements.
- Students really find interest in writing about responses which are raised from social context as can be seen from responses on drug abuse, nuclear energy etc. in the try out study, but from most of the responses, conclusion can be drawn that the progressions of learning to give reason on socio-scientific issues in relation to scientific understanding of concepts of chemistry at senior-secondary level has not been internalised.
- The retention of alternative framework could be seen among few learners, hence it becomes a reason of further research to identify the students' foundational beliefs in science learning for opting science stream especially at senior-secondary level.
- That revision of textbook content of Chemistry is much required in terms of incorporation of socio-scientific issues in the curriculum to make science education more meaningful mentioned in the policy documents of education viz NCF 2005, NEP 2020
- The Assessment criteria is another important factor which builds up the importance and interests among learners and teachers
- Time constraints related to syllabus completion is a major roadblock even if the content is not given in the textbook
- Learners at secondary level are associating CO₂ with global warming or missing the other products obtained from combustion. The awareness about pollutants released by burning of fossil fuels is not fully internalized as learners are conscious about air pollution caused by burning of fossil fuels but they are not able link the chemistry.
- The learners aren't able to relate acidic oxides like carbon dioxide and sulphur dioxide released from burning of fossil fuel with acid rain.
- That the child has alternative framework which is reflected from the response that carbon dioxide and global warming is responsible for ozone depletion & may be the heat generated from combustion reaction is responsible for global warming.

- There is clear-cut lack of awareness among students regarding the economic burden posed by the phenomena of corrosion.
- It could be seen that in case of scientific understanding of the concept both Set A and Set B students are giving similar responses but in terms of awareness of socio-scientific issues, Set A students are marginally doing better than the Set B student, that could be attributed to the more of accessibility of social media platforms and exposure available to the Set A students.
- Some of the responses related to ozone depletion, is showing signs of development of alternative framework.
- Learners are not sure of the different types of colloids and about their practical applications and disadvantages in daily life phenomena.
- The alternate framework development among learners is visible as they are interchangeably overlapping the concept of biodegradability with generation & reduction of smog.

Conclusion:

The research study concludes that learners both at secondary level and senior-secondary level have an awareness about pertinent social issues but the processes that link chemistry with socio-scientific issues has not been internalized to the extent that there is formation of alternative framework among students at secondary level. It also revealed that the student at senior secondary level although aware of social issues alienates chemistry from the social context they live in due to more abstract form of chemistry presented at senior secondary level. Chemistry education should aim at inclusion of socio-scientific issues in a rigorous form so that the objective of education through science is attained and it helps in making of informed and responsible citizens who could be able to make choices judiciously.